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Application No. 10/755,154

AUG 30 2006

Reply to Office Action

## REMARKS/ARGUMENTS

*The Pending Claims*

Claims 1-22 currently are pending. Claim 23 has been withdrawn from consideration pursuant to a restriction requirement. Claims 1-22 are directed toward a polishing system comprising (a) a liquid carrier, (b) a polymer having a degree of branching of about 50% or greater, and (c) a polishing pad, an abrasive, or a combination thereof. Reconsideration of the claims is respectfully requested in view of the remarks herein.

*Summary of the Office Action*

Claims 1-3, 14-20, and 22 stand rejected under 35 U.S.C. § 103(a) as allegedly obvious over European Patent 1 279 708 A1 (Sakai et al.) (hereinafter "the Sakai '708 patent"). Claim 21 stands rejected under 35 U.S.C. § 103(a) as allegedly obvious over the Sakai '708 patent in view of U.S. Patent Application Publication 2002/0125461 A1 (Chou et al.). Applicants acknowledge with appreciation the indication that claims 4-13 contain allowable subject matter.

*Discussion of the Obviousness Rejections*

The Office Action rejects claims 1-3, 14-20, and 22 as allegedly obvious over the Sakai '708 patent. In particular, the Office Action asserts that the Sakai '708 patent illustrates the combination of a liquid carrier; a polymer; and a polishing pad, abrasive, or combination thereof. However, although the Office Action acknowledges that the Sakai '708 patent fails to explicitly disclose a polymer having a degree of branching of 50% or greater, as is required by the pending claims, it nonetheless concludes that, at the time the invention was made, use of such a polymer would have been obvious to one having ordinary skill in the art for the purpose of suppressing recesses on copper wiring while polishing.

To establish a *prima facie* case of obviousness, three basic criteria must be met: (1) the prior art reference(s) must teach or suggest all of the claim limitations, (2) there must be some suggestion or motivation, available to one of ordinary skill in the art, to modify the reference or to combine reference teachings, and (3) there must be a reasonable expectation of success. The teaching or suggestion to make the claimed invention must be found in the

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prior art, and may not be based on Applicants' disclosure. See e.g., M.P.E.P. § 2143. Applicant respectfully traverses the obviousness rejections based on the Sakai '708 patent for two reasons: (1) the cited reference fails to teach or suggest all of the limitations of the pending claims and (2) the cited reference provides no motivation to lead a person of ordinary skill in the art to modify the polymers disclosed therein in such a way as to arrive at the invention defined by pending claims. Contrary to the Office Action's assertions, therefore, the invention defined by the pending claims is not *prima facie* obvious over the Sakai '708 patent.

First, the Sakai '708 patent fails to teach all of the limitations of the pending claims. As the Office Action itself points out, the Sakai '708 patent does not disclose a polymer having a degree of branching of 50% or greater. Instead, the Sakai '708 patent discloses a group of organic compounds including a polyethylene oxide, a polypropylene oxide, a polyoxyethylene alkyl ether, a polyoxypropylene alkyl ether, a polyoxyethylenepolyoxypropylene alkyl ether, and a polyoxyalkylene addition polymer having a triple bond that is optionally substituted with C<sub>1</sub>-C<sub>10</sub> alkyl groups (the Sakai '708 patent at col. 30, lines 14-32). Further, even though the polyoxyalkylene addition polymer is technically branched, as illustrated in formula (1) of the Sakai '708 patent, it exhibits a maximum of only four branch points (R<sub>3</sub>-R<sub>6</sub>) out of a total possible 12 branch points along its polymer backbone (the Sakai '708 patent at col. 30, lines 20-30). This is far less than the minimum 50% branching required by the pending claims. Therefore, without more, the Sakai '708 patent fails to teach all of the elements of the invention defined by the pending claims.

The Sakai '708 patent also fails to suggest all of the limitations of the pending claims. The Office Action dated February 17, 2006, explicitly acknowledged that a polymer that has a degree of branching of at least 50% is materially distinct from a polymer that has branching of 50% or more. Specifically, the Office Action required that Applicant restrict the invention as between pending claims 1-22, drawn to a polishing system, and then-pending claim 23, drawn to a polishing method, because "the process for using the product as claimed can be practiced with another materially different product, such as a polymer that does not require a degree of branching of 50% or more." In view of the Office Action's own classification of the highly branched polymers of the pending claims as materially distinct from those lesser-branched polymers of the Sakai '708 patent, it is clear that the Sakai '708 patent fails to

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suggest this element of the pending claims merely by disclosing polymers with much lesser degrees of branching. Furthermore, the Office Action fails to assert any general knowledge of one of ordinary skill in the art to provide this omitted suggestion to the Sakai '708 patent.

Therefore, for this reason alone, the subject matter of the pending claims cannot properly be considered *prima facie* obvious over the Sakai '708 patent.

Second, the Sakai '708 patent provides no motivation to lead a person of ordinary skill in the art to modify the polymers disclosed in the Sakai '708 patent in such a way to produce the highly branched polymers defined by pending claims. The Office Action asserts that, because the Sakai '708 patent illustrates a polymer with some degree of branching, it would have been obvious to one of ordinary skill in the art to substitute a polymer with a higher degree of branching in order to suppress recesses on copper wiring that may result from polishing. To the contrary, although the Sakai '708 patent addresses the general recessing problem posed by polishing methods (the Sakai '708 patent at paragraphs 0017 and 0018), it does not in any way address the effect of polymer branching on the problem. Instead, the Sakai '708 patent focuses on the particular amount of polymer to be added to best suppress the formation of recesses while also ensuring adequate polishing (the Sakai '708 patent at paragraph 0040). There is nothing in the Sakai '708 patent to suggest that further polymer modification might be beneficial. Both the suggestion to use highly branched polymers in a polishing composition, as well as the benefits that accompany their use, are provided only by Applicants' disclosure accompanying the pending claims. Therefore, to conclude that the pending claims are obvious over the Sakai '708 patent is to make an improper use of hindsight on viewing the disclosure accompanying the pending claims.

Therefore the subject matter of the pending claims also cannot properly be considered *prima facie* obvious over the Sakai '708 patent because the teaching or suggestion to make the polymer modification is not found in the prior art, but only in Applicants' disclosure.

In view of the foregoing, the Sakai '708 patent fails to teach or suggest all of the elements recited in the pending claims. Moreover, the Office Action fails to point to any teaching or suggestion available to those of ordinary skill in the art at the time of the invention that would have motivated one of ordinary skill to modify the disclosure of the Sakai '708 patent in such a way as to arrive at the invention defined by the pending claims.

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That suggestion is provided only by the pending claims and their accompanying disclosure. For either reason, let alone both reasons, the pending claims cannot properly be considered *prima facie* obvious over the Sakai '708 patent. The rejection under Section 103, therefore, should be withdrawn.

*Conclusion*

Applicants respectfully submit that the patent application is in condition for allowance and also request the rejoinder of currently withdrawn claim 23. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,

  
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